REMARKS/ARGUMENTS

Claims 1, 3-4, 6-9, 11-12, 14-15, 17-20, 22-23, 25-26, 28-31, and 33-34 have been examined and finally rejected. The present response amends claim 1, 3, 12, and 23 to correct minor errors. Accordingly, all of the finally rejected claims remain pending. Entry of the present amendment, reconsideration, and allowance of all pending claims are respectfully requested.

Rejections under 35 U.S.C. § 102

Claims 1, 4, 12, 15, 23, and 26 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,801,206 issued to Benoist (hereinafter "Benoist"). It is respectfully submitted that Benoist is in fact not applicable prior art to the rejected claims and that this rejection should therefore be withdrawn.

Independent claims 1, 12, and 23 recite a type of control loop where the output frequency of a laser is controlled based on a laser output frequency measurement, a desired laser output frequency, and a dithering signal. For example, claim 1 recites "controlling said laser output frequency based on said measured response by generating an error signal based on a difference between a measured laser output frequency and a desired laser output frequency and generating a control signal for said laser output frequency based on some of said error signal and a dithering signal." This limitation is neither disclosed nor suggested by the Benoist patent.

Benoist presents a ring laser gyroscope system that employs dithering. Rotation of the gyroscope is detected by monitoring an interference signal generated by the interaction of two counter-rotating laser beams. A problem in such gyroscopes is that in certain situations such as low rotation rate of the gyroscope, the two counter-rotating laser beams may frequency lock to each other causing a false indication of no rotation. The Benoist reference explains that by mechanically shaking or dithering the gyroscope, this lock-in problem may be ameliorated.

Benoist presents a control loop for optimally controlling the mechanical dither oscillations. The control loop is described with reference to Fig. 7 and the text beginning at the bottom of column 9 and continuing through the middle of column 12. Control of the mechanical dithering is based on a signal indicative of the amplitude of the mechanical dither oscillations as

provided by a senor 60 shown in Fig. 1. The sensor may be, for example, a magnetic pick-off sensor.

It is clear from review of the relevant text in Benoist that a measurement of the laser output frequency plays no part in the operation of the control loop to contribute to "generating a control signal." In fact, in Benoist there is not disclosure of direct measurement of the laser frequency but rather only measurement of an interference signal by a photodetector 50. This photodetector output does not participate in the control circuitry of Fig. 7. Such participation would be a threshold requirement for relevance to claims 1, 12, and 23. Since the control signal as defined by the independent claims is not present in Benoist, there also can be no "sweeping said control signal until said laser output frequency is within said tracking range" as required by claims 1, 12, and 23. Claims 1, 12, and 23 are therefore allowable over the art of record.

Claims 4 and 15 are allowable for at least the reason of their dependence from their allowable parent claims. Claims 4 and 15 are further allowable on their own merits. Claims 4 and 15 recite the use of a fiber Bragg grating. The rejection identifies component 50 if Fig. 2 as being equivalent to the recited fiber Bragg grating. However, component 50 is clearly explained at the bottom of column 8 to be a photodetector, not a fiber Bragg grating as required by rejected claims 4, 15, and 26.

Rejections Under 35 U.S.C. §103

Claims 2, 3, 6-10, 14, 17-21, 25, and 28-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Benoist in view of U.S. Patent No. 6,353,623 issued to Munks, et al. (hereinafter "Munks"). These rejections are also respectfully traversed.

Claims 6, 17, and 28 recite sweeping of a control signal to shift the measured indication of laser output frequency to within a tracking range. As explained above, this feature is neither disclosed nor suggested by the Benoist patent because there is no laser output frequency measurement involved in the control loop described there. Also, as explained in the previous response by Applicant, this feature is also not found in Munks. Accordingly, a *prima facie* case of obviousness cannot be sustained against claims 6, 17, and 28. Claims 9, 20, and 31 are

allowable for at least the reason of their dependence from their allowable parent claims. Furthermore, these dependent claims recite the use of a fiber Bragg grating which as explained above is not found in Benoist. Claims 9, 20, and 31 are therefore also allowable on their own merits.

Claims 7, 18, and 29 are allowable for at least the reason of their dependence from claims 6, 17, and 28. Claims 3, 8, 14, 19, 25, and 30 are allowable for at least the reason of their dependence from allowable claims 1, 6-7, 12, 17-18, 23, and 28 respectively.

Claims 11, 22, and 33 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Benoist in view of Munks and further in view of U.S. Patent No. 5,262,843 issued to Sugarbaker, et al. (hereinafter "Sugarbaker"). Claims 11, 22, and 33 are dependent from claims 6, 17, and 28 respectively. Accordingly, claims 11, 22, and 33 incorporate limitations sufficient to overcome Benoist and Munks. Furthermore, the rejection does not point to any disclosure in Sugarbaker that would remedy the deficiencies of Benoist and Munks. Claims 11, 22, and 33 are also allowable over the art of record.

Conclusion

For the foregoing reasons, Applicant believes all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 446-8694.

Respectfully submitted,

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